

Appendix | SASB Materiality Map for the Industry

Topics	Chapter	Accounting metric	Corresponding content
Activity metrics	Value chain	IF-EU-000.A	Total number of users: 14.75 million
	Value chain	IF-EU-000.B	Customer power consumption (sold) by percentage: Industrial: 57% , Residential: 21% , Commercial: 15% , Others: 7% User power supply: Industrial: 13.47 billion kWh , Residential: 4.93 billion kWh , Commercial: 3.42 billion kWh , Others: 1.71 billion kWh
	Value chain	IF-EU-000.C	In 2021, there were 17,995 circuit kilometers of transmission lines and 399,813 circuit kilometers of distribution lines.
	3.1.1	IF-EU-000.D	Total power generation of 18.91 billion kWh, thermal generation of 15.52 billion kWh (62.4%), nuclear generation of 2.68 billion kWh (10.8%), renewables generation of 0.39 billion kWh (1.6%), and pumped-storage hydropower generation of 0.32 billion kWh (1.3%)
	3.1.1	IF-EU-000.E	Total purchasing power of 5.97 billion kWh
Greenhouse gases emission and energy resource planning	6.2.2	IF-EU-110a.1	Scope 1 GHG emissions of 98.13 million tons, yet no regulations of emission limit and emission disclosure in the country
	Value chain	IF-EU-110a.2	CO ₂ e Emissions of 98.77 million tons of CO ₂ e in 2021
	6.2.2	IF-EU-110a.3	Regarding the short, medium, and long-term strategies and objectives of Taipower's management on scope 1 emissions, please refer to 6.2.2
	3.2.2	IF-EU-110a.4	Given Taiwan's renewable energy and other sources of electricity are all connected to the grid and mixed with other sources of electricity, it is impossible to distinguish renewables users independently
Air quality	6.3.3	IF-EU-120a.1	(1) NO _x : 188 kg/GWh (2) SO _x : 98 kg/GWh (3) PM: 6 kg/GWh
Water resources management	6.3.4	IF-EU-140a.1	The total water consumption of thermal power plants was 9,086,281 cubic meters
	6.3.4	IF-EU-140a.2	No violation of water resources regulations by Taipower in 2021
	6.3.4	IF-EU-140a.3	Please refer to 6.3.4 for the Water resources management

Topics	Chapter	Accounting metric	Corresponding content
Coal ash management	6.3.2	IF-EU-150a.1	Total coal ash production in 2021 was 2.34 million tons, with a reuse rate of 86.2%
	6.3.5	IF-EU-150a.2	For the detailed status of coal ash accumulation, please refer to 6.3.5 Table of "Diameter, Height, and Actual Controlled Ash Level of Fly Ash Silo of Various Coal-fired Power Plants"
Energy affordability	1.1.2	IF-EU-240a.1	In Taiwan, it does not differentiate users based on 500MWh, 1000MWh, and provides the average retail electricity price of the following users: (1) residential 2.5110 (dollar/kWh), (2) commercial 3.1861 (dollar/kWh), (3) industrial 2.4592 (dollar/kWh)
	1.1.2	IF-EU-240a.2	
	3.1.2	IF-EU-240a.3	Taipower currently does not have statistics on the requirements for this metric, supplementing the 2021 System Average Interruption Duration Index (SAIDI) of 59.8917 minutes/household and the System Average Interruption Frequency Index of 1.0967 (SAIFI) times/household
	5.1.1	IF-EU-240a.4	External factors such as the COVID-19 pandemic and the breaking of the production reduction agreement in oil-producing countries affected the user's electricity affordability in 2021
Workplace health and safety	7.2.1	IF-EU-320a.1	(1) Total Recordable Incident Rate (TRIR) of 1.3%, (2) fatality rate of 0%, and (2) Near-Miss Frequency Rate (NMFR) of 0.17%
User efficiency and demand	NA	IF-EU-420a.1	Not applicable (LRAM is the profit calculation system adopted by the US power industry)
	4.1	IF-EU-420a.2	Smart meter mastered 72% of the country's electricity consumption information
	5.1.2	IF-EU-420a.3	A total of 0.149 billion kWh of electricity were saved in 2021
Nuclear safety and crisis management	NA	IF-EU-540a.1	Not applicable. This metric requires that the number of nuclear power plants must be classified according to the US NRC Action Matrix Column. Currently, there are only two nuclear power plants in operation in Taiwan
	3.1.1	IF-EU-540a.2	Regarding Taipower's measures to ensure nuclear energy safety, please refer to 3.1.1 for details
Grid resiliency	2.3.2	IF-EU-550a.1	Two labor penalties, 13 work safety penalties, and seven environmental protection penalties
	3.1.2	IF-EU-550a.2	(1) System Average Interruption Duration Index (SAIDI) of 16.376, (2) System Average Interruption Frequency Index (SAIFI) of 1.0967, and (3) the SAIDI/SAIFI formula of the Customer Average Interruption Duration Index (CAIDI) may not be synchronized with the power supply reliability, which cannot faithfully represent the performance of power supply reliability in use, so the evaluation is not adopted

Appendix | GRI Standards Index

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GRI Standards	GRI Items	Reference	Page/URL
Organizational Profile			
GRI 102: General Disclosures 2016	102-1 Name of the organization	1.1.1 Taipower Profile	18~20
	102-2 Activities, brands, products, and services		
	102-3 Location of headquarters		
	102-4 Location of operation		
	102-5 Ownership and legal form		
	102-6 Markets served		
	102-7 Scale of the organization		
	102-8 Information on employees and other workers	7.1.1 Human Resource Management Strategies and Structure	97~98
	102-9 Supply chain	2.4.1 Supplier Management	46~50
	102-10 Significant changes to the organization and its supply chain	1.3.1 Transformation Planning 1.3.2 The Current Status of Promoting Transformation in Taipower 2.4.1 Supplier Management	25~26 46~50
	102-11 Precautionary principle or approach	2.2.1 Risk Management Manchenism 2.2.2 Risk Assessment and Identification 2.3.1 Ethical Management	36~40 42~43
	102-12 External initiatives	5.2 Stakeholder Communication	72~74
	102-13 Membership of associations		
Strategy			
GRI 102: General Disclosures 2016	102-14 Statement from senior decision-maker	Statement from the Chairman	3
	102-15 Key impacts, risks, and opportunities	2.2.2 Risk Assessment and Identification	38~40
Ethics and Integrity			
GRI 102: General Disclosures 2016	102-16 Values, principles, standards, and norms of behavior	2.3.1 Ethical Management	42~43


GRI Standards	GRI Items	Reference	Page/URL
Governance			
GRI 102: General Disclosures 2016	102-18 Governance structure	1.2.1 The Sustainable Development Commission 2.1.1 Organization Structure 2.1.2 Board of Directors	23~24 33~35
Stakeholder Engagement			
GRI 102: General Disclosures 2016	102-40 List of stakeholder groups	1.4.1 Identification of Stakeholders	27
	102-41 Collective bargaining agreements	7.2.2 Labor-Management Communication and Collective Bargaining	106
	102-42 Identifying and selecting stakeholders	1.4.1 Identification of Stakeholders	27
	102-43 Approach to stakeholder engagement		
	102-44 Key topics and concerns raised	1.4.2 Key Sustainability Issues	27~31
	102-45 Entities included in the consolidated financial statements	Reporting Principles	2
	102-46 Defining report content and topic boundaries		
	102-47 List of material topics	1.4.2 Key Sustainability Issues	27~31
	102-48 Restatements of information		
	102-49 Changes in reporting		
	102-50 Reporting period	Reporting Principles	2
	102-51 Date of the most recent report		
	102-52 Reporting cycle		
	102-53 Contact point for questions regarding the report		
	102-54 Claims of reporting in accordance with the GRI Standards	GRI Standards Index	116~120
	102-55 GRI content index		
102-56 External assurance	Assurance Statement		
GRI 103: Management Approach 2016	103-1 Explanation of major topic and its boundary	1.4.2 Key Sustainability Issues	27~31
Disclosure of Material Topics and Specific Topics			
Corporate Governance and Sustainable Management			
GRI 102: General Disclosures 2016	102-11 Precautionary principle or approach	2.3.1 Ethical Management	42~43

GRI Standards	GRI Items	Reference	Page/URL
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	1.1.2 Operational Performance 2.2.1 Risk Management Manchenism 2.2.2 Risk Assessment and Identification 2.3.1 Ethical Management	21~22 36~40 42~43
GRI 205: Anti-corruption 2016	205-1 Operations assessed for risks related to corruption	2.3.1 Ethical Management	42~43
	205-3 Confirmed incidents of corruption and actions taken	2.3.2 Compliance	44~45
GRI 307: Environmental compliance 2016	307 Environmental compliance		
GRI 419: Socioeconomic compliance 2016	419 Non-compliance with laws and regulations in the social and economic area		
Accessibility and Affordability of Electricity			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	5.1.1 Demand Side Management Measures	69~70
GRI 203: Indirect Economic Impacts 2016	203-2 Significant indirect economic impacts	5.1.1 Demand Side Management Measures 1.1.2 Operational Performance	69~70 21~22
Stability and Reliability of Power Supply			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	3.1.1 A Stable Power Supply and Generation System 3.2.1 The Transition to a New Generation of Energy 3.2.2 Renewables Development	53~56 59~63
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	3.1.2 A Robust Transmission and Distribution System	57~58
	203-2 Significant indirect economic impacts	3.1.1 A Stable Power Supply and Generation System 3.2.1 The Transition to a New Generation of Energy	53~56 59~61
Transforming into a Power Utility Group (Specific Topic)			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	1.3.1 Transformation Planning	25
GRI 102: General Disclosures 2016	102-10 Significant changes to the organization and its supply chain	1.3 Promoting Corporate Transformation	25~26
Power Industry Reform and Fair Competition (Specific Topic)			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	1.3 Promoting Corporate Transformation	25~26

GRI Standards	GRI Items	Reference	Page/URL
Management and Financial Performance			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	1.1.2 Operational Performance	21~22
GRI 201: Economic Performance 2016	201-1 Direct economic value generated and distributed		
Technological Research and Innovation			
GRI 103 : Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	1.3.1 Transformation Planning	25
GRI 102 : General Disclosures 2016	102-10 Significant changes to the organization and its supply chain	1.3.1 Transformation Planning 1.3.2 The Current Status of Promoting Transformation in Taipower	25~26
Renewable and Clean Energy Development			
GRI 103 : Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	3.2.1 The Transition to a New Generation of Energy 3.2.2 Renewables Development 4.1 Smart Grid General Planning 4.2 Smart Grid Application- Vehicle-to-Grid Bi-directional Charging System	59~63 65~67
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	3.2.2 Renewables Development	61~63
	203-2 Significant Indirect economic impacts	3.2.1 The Transition to a New Generation of Energy	59~61
Climate Change and Low-Carbon Strategies			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	4.2 Smart Grid Application- Vehicle-to-Grid Bi-directional Charging System 6.1.2 Developing High-efficiency Thermal Power Generation	67、82
GRI 302: Energy 2016	302-4 Reduction of energy consumption	6.2.1 Fuel Usage Management 6.2.2 Enhancing the Energy Efficiency of Taipower's Operations	83~84
Air Quality (Specific Topic)			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	6.3.3 Response Measures to Air Pollution	88~90
Energy Efficiency			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	6.2.2 Enhancing the Energy Efficiency of Taipower's Operations	83~84
GRI 302: Energy 2016	302-1 Energy consumption within the organization	6.2.2 Enhancing the Energy Efficiency of Taipower's Operations	83~84
	302-3 Energy intensity		
	302-4 Reduction of energy consumption	6.2.1 Fuel Usage Management 6.2.2 Enhancing the Energy Efficiency of Taipower's Operations	83~84

GRI Standards	GRI Items	Reference	Page/URL
Demand Side Management and Energy Conservation			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	4.1 Smart Grid General Planning 5.1.1 Demand Side Management Measures	65~67 69~70
GRI 203: Indirect Economic Impacts 2016	203-2 Indirect economic impacts		
Power Plants Renewal and Decommissioning			
GRI 103: Management Approach 2016	103-2 The management approach and its components 103-3 Evaluation of the management approach	3.2.1 The Transition to a New Generation of Energy 3.2.2 Renewables Development	59~63
GRI 203: Indirect Economic Impacts 2016	203-1 Infrastructure investments and services supported	3.2.2 Renewables Development	61~63
	203-2 Significant indirect economic impacts	3.2.1 The Transition to a New Generation of Energy	59~61
Worker's Health and Safety			
GRI 403: Occupational Health and Safety 2018	403-1 Occupational health and safety management system	7.2.1 Occupational Health and Safety	100~105
	403-2 Hazard identification, risk assessment, and incident investigation		
	403-3 Occupational health services		
	403-4 Worker participation, consultation, and communication on occupational health and safety		
	403-5 Worker training on occupational health and safety		
	403-6 Promotion of worker health		
	403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships		
	403-9 Work-related injuries		
Other GRI-corresponding items			
GRI 418: Customer privacy 2016	418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	5.3.2 Guarding Information Security	77
Industry-Specific Topics of the Electric Utilities			
G4 - Industry-Specific Topics of the Electric Utilities	G4-EU10 Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime	3.1.2 A Robust Transmission and Distribution System	57~58
	G4-EU11 Average generation efficiency of thermal plants by energy source and by regulatory regime	6.2.2 Enhancing the Energy Efficiency of Taipower's Operations	83~84
	G4-EU28 Power outage frequency	3.1.2 A Robust Transmission and Distribution System	57~58
	G4-EU29 Average power outage duration		

Appendix | Assurance Statement 102-56



ASSURANCE STATEMENT

SGS TAIWAN LTD.'S REPORT ON SUSTAINABILITY ACTIVITIES IN THE TAIWAN POWER COMPANY'S SUSTAINABILITY REPORT FOR 2021

NATURE AND SCOPE OF THE ASSURANCE/VERIFICATION
 SGS Taiwan Ltd. (hereinafter referred to as SGS) was commissioned by Taiwan Power Company (hereinafter referred to as TPC) to conduct an independent assurance of the Sustainability Report for 2021 (hereinafter referred to as the Report). The scope of the assurance, based on the SGS Sustainability Report Assurance methodology, included the sampled text, and data in accompanying tables, contained in the report presented during verification (12/ May/ 2022~ 14/ Jun/ 2022). SGS reserves the right to update the assurance statement from time to time depending on the level of report content discrepancy of the published version from the agreed standards requirements.

INTENDED USERS OF THIS ASSURANCE STATEMENT
 This Assurance Statement is provided with the intention of informing all TPC's Stakeholders.

RESPONSIBILITIES
 The information in the TPC's Sustainability Report of 2021 and its presentation are the responsibility of the directors or governing body (as applicable) and management of TPC. SGS has not been involved in the preparation of any of the material included in the Report.

Our responsibility is to express an opinion on the report content within the scope of verification with the intention to inform all TPC's stakeholders.

ASSURANCE STANDARDS, TYPE AND LEVEL OF ASSURANCE

The SGS ESG & Sustainability Report Assurance protocols used to conduct assurance are based upon internationally recognized assurance guidance, including the Principles contained within the Global Reporting Initiative Sustainability Reporting Standards (GRI Standards) 101: Foundation 2016 for report quality, and the guidance on levels of assurance contained within the AA1000 series of standards and guidance for Assurance Providers.

The assurance of this report has been conducted according to the following Assurance Standards:

Assurance Standard Options and Level of Assurance	
A.	SGS ESG & SRA Assurance Protocols (based on GRI Principles and guidance in AA1000)
B.	AA1000ASv3 Type 1 Moderate Level (AA1000AP Evaluation only)

TWLPP 5008 Issue 2201

SCOPE OF ASSURANCE AND REPORTING CRITERIA
 The scope of the assurance included evaluation of quality, accuracy and reliability of specified performance information as detailed below and evaluation of adherence to the following reporting criteria:

Select specific reporting criteria included in the contract

Reporting Criteria Options
1. GRI Standards (Core)
2. AA1000 Accountability Principles (2018)

- AA1000 Assurance Standard v3 Type 1 evaluation of the report content and supporting management systems against the AA1000 Accountability Principles (2018) at a moderate level of scrutiny; and
- evaluation of the report against the requirements of Global Reporting Initiative Sustainability Reporting Standards (100, 200, 300 and 400 series) claimed in the GRI content index as material and in accordance with.

ASSURANCE METHODOLOGY
 The assurance comprised a combination of pre-assurance research, interviews with relevant employees, superintendents, SD committee members and the senior management in Taiwan; documentation and record review and validation with external bodies and/or stakeholders where relevant. In response to COVID-19 pandemic situation the assurance process was conducted via Microsoft Teams.

LIMITATIONS AND MITIGATION
 Financial data drawn directly from independently audited financial accounts, and SASB related disclosures has not been checked back to source as part of this assurance process.

STATEMENT OF INDEPENDENCE AND COMPETENCE
 The SGS Group of companies is the world leader in inspection, testing and verification, operating in more than 140 countries and providing services including management systems and service certification; quality, environmental, social and ethical auditing and training; environmental, social and sustainability report assurance. SGS affirm our independence from TPC, being free from bias and conflicts of interest with the organization, its subsidiaries and stakeholders.

The assurance team was assembled based on their knowledge, experience and qualifications for this assignment, and comprised auditors registered with ISO 26000, ISO 20121, ISO 50001, SA8000, RBA, QMS, EMS, SMS, GPMS, CFP, WFP, GHG Verification and GHG Validation Lead Auditors and experience on the SRA Assurance service provisions.

FINDINGS AND CONCLUSIONS

VERIFICATION/ ASSURANCE OPINION
 On the basis of the methodology described and the verification work performed, we are satisfied that the specified performance information included in the scope of assurance is accurate, reliable, has been fairly stated and has been prepared, in all material respects, in accordance with the reporting criteria.

We believe that the organization has chosen an appropriate level of assurance for this stage in their reporting.

TWLPP5008 Issue 2201

AA1000 ACCOUNTABILITY PRINCIPLES (2018) CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

Inclusivity

TPC has demonstrated its commitment to stakeholder inclusivity through formalised commitment from the highest governing body. A variety of engagement efforts such as survey and communication to employees, customers, investors, suppliers, CSR experts, and other stakeholders are implemented to underpin the organization's understanding of stakeholder concerns.

Materiality

TPC has established effective processes for determining issues that are material to the business. Formal review has identified stakeholders and those issues that are material to each group and the report addresses these at an appropriate level to reflect their importance and priority to these stakeholders. It's recommended to use appropriate criteria and thresholds to determine the significance, likelihood, and present and expected future impact of identified material sustainability topics.

Responsiveness

The report includes coverage given to stakeholder engagement and channels for stakeholder feedback. Communications with stakeholders on an ongoing and timely manner are recommended to be delivered reasonable and viable responses.

Impact

TPC has performed processes to recognize and manage the organization's impacts that are applied across the organization under the governance of senior management. It's recommended to defined methodology to present impacts as quantitative or monetized measurement results.

GLOBAL REPORTING INITIATIVE REPORTING STANDARDS CONCLUSIONS, FINDINGS AND RECOMMENDATIONS

The report, TPC's Sustainability Report of 2021, is adequately in line with the GRI Standards in accordance with Core Option. The material topics and their boundaries within and outside of the organization are properly defined in accordance with GRI's Reporting Principles for Defining Report Content. Disclosures of identified material topics and stakeholder engagement, GRI 102-40 to GRI 102-47, are correctly located in content index and report. For future reporting, it is recommended to have more descriptions on the mechanisms and results for evaluation the effectiveness of the management approach for material topics reported on which are not covered by the GRI Standards.

Signed:

For and on behalf of SGS Taiwan Ltd.



Stephen Pao
Knowledge Deputy General Manager
Taipei, Taiwan
06 July, 2022
WWW.SGS.COM

